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ON THOUGHT AND LANGUAGE.

A LECTURE DELIVERED BEFORE THE PHILOSOPHICAL SOCIETY
OF GLASGOW, ON JAN. 21, 1891.

IT seems impossible to many people to look upon language as anything but an instrument of thought. In one sense this is perfectly true. We think by means of words, just as we see by means of eyes, and hear by means of ears, and walk by means of legs. But could we walk without our legs, or see without our eyes? We can walk with artificial legs, no doubt, and so we can think and speak in foreign languages, and in every kind of artificial sign-language. But as artificial legs presuppose natural legs, foreign and artificial languages presuppose our own natural language.

When we speak of instruments we mean generally such things as knives with which we cut, or pens with which we write. They are instruments which are useful, but they are not indispensable, and can be replaced by other instruments. This does not, however, apply to eyes, ears, or language, and in order to mark that distinction the former are generally called instruments, the latter organs.

Now, if we call language the organ of thought, we, no doubt, admit that we can distinguish between the *organon*, that which works, and the *ergon*, i. e. the work which it performs. But it does by no means follow that therefore the *ergon* could ever exist without the *organon*. We can easily distinguish between the act of spoken thought and the organ of spoken thought, but it does by no means follow that therefore the act of spoken thought could ever exist without the organ of spoken thought.

It may seem unfair in this argument to call thought "spoken thought." It looks like begging the whole question. But it really is not so. By calling thought "spoken thought," we only supply a deficiency of our modern languages. If we were Greeks, we should use the simple word *Logos*, and instead of begging the question, we should show that our proposition is, really self-evident, or, it may be, even tautological, namely that *logos* is impossible without *logos*.

Hère we can see at once how intimately thought is connected with language, how it is dependent on it, or, more correctly, how inseparable the two really are. If, like the Greeks, we had a word such as *logos*, we should probably never have doubted that what we call speech and thought are but two sides of the same thing. And the same lesson is taught us again and again, if only we are inclined to listen to it.

Suppose we had no such word as *matter*, would not our whole system of thought be different? Matter is not an object, perceived by our senses. We may even go further and say that matter by itself never exists. This or that matter exists, chemical substances, say, gold or silver, oxygen or hydrogen, exist; but matter, which some philosophers look upon as the most certain and concrete of all things, is simply an abstraction, something that may be predicated of many things, but that is never found by itself *in rerum natura*.

Some people define matter as what is ponderable and impenetrable, but here again, nothing exists that is simply ponderable, or impenetrable. It is always something else; it is iron, wood, stone, vapor, gas, but never matter, *pur et simple*.

It is clear, therefore, that matter is made by us, and that without some such word as matter, we could never have the faintest idea or concept of matter. For how should we call it? On the other hand, it is equally clear that we could not have the word matter, without the concept of matter. For what would be the use of it? Now, what follows from this apparent dilemma? If the concept cannot be prior to the name and the name cannot be prior to the concept, they must needs be simultaneous, or, more correctly, they must be the same thing under two aspects.

From an historial point of view, that is, if we consider the genesis of words and concepts, not in modern times, but during that period when words and concepts were framed for the first time, we are bound to admit that the word is really the *prius*. That period may be ever so far distant, but it was nevertheless a very real and truly historical period.

How did man arrive at such a word as matter? The word itself tells its own story. It came to us from French, it came into French from Latin. In Latin *materies* or *materia* still means wood and timber, though it has also assumed the meaning of matter, like the Greek *ύλη*, which means both wood and matter. The process by which *materies* came to mean matter is clear. If *materies* meant originally the wood out of which a hut, a table, a chair, or a stick was made, it was naturally applied to other substances also, such as stone, bricks, or metal when used in the making of huts, tables, chairs, or sticks. In the same way we speak of a pen, i. e. a quill, though we mean a steel pen.

When the original special meaning of wood thus disappeared, there remained only the meaning of building material, material, and, at last, of matter and substance. We say now, What is the matter? What does it matter? but we little think of the solid beams out of which such expressions were hewn and fashioned. In this sense, therefore, we may say that historically the word *materies* came first, meaning a beam, and that gradually it shed its various attributes, one after the other, till there remained nothing but its trunk, and that is what we now mean by matter.

Here, therefore, we see the process of generalisation which is very important, particularly in the later periods of language and thought.

But it is the greatest mistake to suppose that language, such as we know it, what we might call historical language, always begins with the particular and then proceeds to the general. Adam Smith was one of the ablest defenders of the theory that the *Primum Cognitum* and the *Primum Appellatum* must have been the particular. But all the facts of language are dead against this theory. And yet, that theory has once more been put forward by a philoso-

pher who prides himself on nothing so much as that his philosophy rests throughout on positive facts. I do not blame a philosopher who is ignorant of the results obtained by the Science of Language, so long as he abstains from touching on the subject. But constantly to appeal to language, and yet to ignore what has been achieved by comparative philologists, is unpardonable. No one is a greater sinner in that respect than Mr. Herbert Spencer.

When speaking of the process by which the abstract idea of color was formed he says : * ' The idea of each color had originally entire concreteness given to it by an object possessing the color ; as some of the unmodified names, such as orange and violet, show us. The dissociation of each color from the object specially associated with it in thought at the outset, went on as fast as the color came to be associated in thought with objects unlike the first, and unlike one another. The idea of orange was conceived in the abstract more fully in proportion as the various orange-colored objects remembered, cancelled one another's diverse attributes, and left outstanding their common attribute. So it is if we ascend a stage, and note how there arises the abstract idea of color, apart from particular colors.'

Now this is all untrue. Such names as orange and violet are some of the latest names of color. They presuppose such late, nay exotic, concepts, as *orange* and *violet*. The question why an orange was called an orange, and a violet a violet remains unasked and unanswered. In the old names for *black*, *white*, *red*, *green*, and *blue*, there is not a trace of ink, or snow, or blood, or sea, or sky. They are all derived, so far as we can analyse them at all, from roots meaning to shine, to grow, to beat black and blue, and not from oranges, roses, or violets.

Again, what can be the meaning of such a sentence as : † ' Words referring to quantity furnish cases of more marked dissociation of abstract from concrete. Grouping various things as small in comparison either with those of their kind or with those of other kinds ;

* *Data of Ethics*, p. 124.

† L. c., p. 125.

and similarly grouping some objects as comparatively great, we get the opposite abstract notions of smallness and greatness.' Does Mr. Spencer really believe that we can call things small and great, that our language can possess two adjectives expressive of these qualities, and that yet at the same time we are without an abstract notion of smallness and greatness? Mr. H. Spencer constantly calls on the facts of language, to confirm his views, but his facts are hardly ever correct. For instance: after having explained that, according to his ideas, greater coherence among its component motions broadly distinguishes the conduct we call moral from the conduct we call immoral, he appeals to the word *dissolute*, when meaning immoral, as proving this theory. But *dissolutus* in Latin meant originally no more than negligent, remiss. *Dissolutio* meant languor, weakness, effeminacy, and then only licentiousness and immorality. Language, therefore, in no way confirms Mr. H. Spencer's speculations, still less does experience, for no man is so coherent in his acts, so calculating, so self-restrained, as the confirmed criminal; no one is often so careless, so little shrewd, so easily duped as the thoroughly moral and therefore trustful and confiding man.

But to return to the history of the word for matter. The process by which *materies*, wood, came to mean matter, is intelligible enough, whether we call it generalisation, or abstraction. But how came *materies* to mean wood? That is the question which has to be solved, and in solving it, we shall find that while in the second period of thought-language the progress is from the particular to the general, the progress in the first period is the reverse, namely from the general to the particular. In the case of *materes* this is very clear. No one can doubt that in *materies* the radical element is *mā*, the derivatives *ter* and *ies*. The radical element *mā* is found in Sanskrit *mā-tram*, measure, *mā-nam*, measuring, *mā-na-s*, a building; in Greek μέτρον, measure; in Latin *me-tarē*, to measure. We can hardly doubt that the oldest Aryan name for mother also, namely *mātar*, Greek μήτηρ, Latin *mater*, English *mother*, is derived from that root, though it is doubtful in what sense. It may have meant originally no more than maker or fashioner, and it is impor-

tant to observe that in the Veda the same word *mdtar*, occurs as a masculine and means maker, and actually governs an accusative. But it may also have meant arranger, controller, and mistress of all household affairs. Whatever its original intension was, *mdtar* soon became a mere name. Its etymological keynote was no longer audible, and *mdtar* meant mother and all that was implied in that name when used by children and others.

If we compare all the words which contain this *md* as their common element, we can see that it meant originally to put two or more things together. This led to two applications. What we call measuring is really putting two things together, one by the side of another, to see how far they agree and how far they differ. Thus *md* took the special meaning of measuring, in such words as Greek *μέτρον* and Sanskrit *mdtram*. But to put together could also be used in the sense of joining, carpentering, building, and making, and this meaning we find in such words as (Sanskrit) *mdnas*, a building, *mdti*, he measures, he makes, and likewise *materies*, what has been fashioned, what can be used for building a hut, timber, wood, building material, then any kind of material, and at last matter, substance in its most general acceptance.

You can see here very clearly the twofold process in the formation of words, first, from the general to the particular,—from measuring to wood, and then from the particular to the general, from timber to matter.

If you ask, what is this syllable *md* which has the general meaning of measuring and making, I can only answer, We know, and we do not know. We know as a fact that it is the common element in a number of words, which are differentiated by a number of derivative elements, called suffixes, prefixes, and infixes, but which can all be shown to share in common the general meaning of making and measuring. These common elements have been called roots. The question whether these roots ever existed by themselves, and whether any language could ever have consisted of these roots, is a foolish question. For as soon as a root occurs in a sentence, it is either a subject or a predicate, a noun or a verb, and it has ceased to be a mere root. But on the other hand, it is quite true that in

certain languages, as, for instance, in Chinese there is no formal difference between a root and a word—there are no suffixes or prefixes. But the strict rules of the collocation of words in every sentence make it quite clear whether a word is to be taken as a substantive, a verb, an adjective, an adverb, and all the rest.

By the same process by which we have reduced a number of words to the root *md*, the whole dictionary of Sanskrit, and of English also, in fact of all the Aryan and likewise of the Semitic languages, has been reduced to a small number of roots. Given that small number of roots, we undertake to account for the whole wealth of words in any language, simply by means of derivation with suffixes and prefixes, and by means of composition.

In all this we are dealing with fact, facts which are as well ascertained as any facts in physical science.

Making allowance for a small margin of words which have as yet resisted all attempts at etymological analysis, we can state that the vast majority of words in Sanskrit has been reduced to about 800 roots. In the progress of language whole families of words derived from some of these roots become extinct while others continue prolific and take their place. The consequence is that the number of roots in English has dwindled down to 461, while the sum total of words has risen to about 250,000.

Every one of these roots has a general or conceptual meaning, such as striking, pushing, rubbing, cutting, bearing, binding, measuring, building, moving, going, falling, and all the rest.

It often happens, however, that two or more roots have the same or nearly the same meaning, and this explains why, when we count the fundamental concepts expressed by our 800 roots in Sanskrit, we find that they amount to no more than 121.

I say again that in all this we are dealing with well ascertained facts.

The next step, however, leads us into the domain of theory. If we are asked, how these roots came into existence, we may decline to answer the question as outside the limits of science. A chemist would probably do the same, if he were asked how the chemical elements came into existence. In fact, the students of the

Science of Language have always taken their stand here and have treated roots as ultimate facts.

I ought to mention, however, two theories which, though they have long been surrendered by students of the Science of Language still enjoy a certain popularity, and commend themselves to many people by their extreme simplicity and plausibility.

The first consists in ascribing the roots of all languages to a direct communication from God. It is impossible to refute such an opinion; all we can say is that such a communication, if we try to realise it in imagination, would imply such a crude anthropomorphism that one naturally shrinks from entering into details.

The second consists in looking upon roots as imitations of the sounds of nature or as interjections. Here all we can say is that the experiment has been tried again and again, and has failed. Every language contains a number of such words which are imitations of the sounds of nature or interjections. No one can doubt of the origin of *bow wow*, a dog, or of *pooh-poohing*, in the sense of rejecting. But the great stock of words, however, cannot be accounted for by this easy process, and no serious scholar would think of resuscitating what many years ago I described as the Bow-wow and Pooh-pooh theories.

But while the student of language seems to me to have a perfect right to treat the roots of language as ultimate facts, it is difficult for the philosopher not to look beyond. He cannot hope to do more than to suggest an hypothesis, but if his hypothesis accounts for the few facts he has to deal with, such an hypothesis is legitimate, though, no doubt, it is very far from being an established truth.

The hypothesis which I suggested on the origin of roots, was suggested to me by Professor Noiré's hypothesis as to the origin of concepts. My late friend, Professor Noiré, was one of those who discovered difficulties where no one else saw them. While most philosophers were satisfied with the fact that man possessed the power of forming, not only percepts, but concepts also, while no trace of conceptual thought was found in animals, Noiré subjected this power of forming concepts to a most minute psychological

analysis, and thus was brought face to face with the question, what was, from a psychogenetic point of view, the real impulse to the formation of conceptual thought. Questions like this, which to most people, seem perfectly superfluous, often mark the real progress in the history of philosophy. Logicians see no difficulty in explaining how, either by addition or subtraction, positively or negatively, concepts are formed out of percepts. White, they say, is either what snow, milk, and marble share in common, or what remains if we drop from snow, milk, and marble all but their color. The psychologist who looks upon the human mind as the result of an evolution, whether in the individual or in the race, asks, not *how*, but *why* such concepts should have been formed. Now Professor Noiré showed, as I thought, with great sagacity, that the first inevitable concepts arose from man's consciousness of his own repeated acts; that nowhere in nature could we find a similar primitive and irresistible impulse to conceptual thought, but that if the beginning had once been made, there was no longer any difficulty in accounting for the further development of conceptual thought in all directions.

I call this no more than an hypothesis, or, if you like, a guess, and I do not see how in the regions in which we find ourselves, we can expect anything more than an hypothesis. But when one hypothesis, like that of Noiré's, harmonises with another hypothesis, that was formed quite independently, we cannot help seeing that the two lend each other powerful mutual support.

Let us remember then that a most careful psychological analysis had led Noiré to the conclusion that the germs of all conceptual thought were to be found in the consciousness of our own repeated acts. And let us place by the side of this, the well-ascertained fact that the germs of all conceptual language, what we call the roots, express with few exceptions the repeated acts of men. Is not the conclusion almost inevitable that these two processes were in reality but two sides of one and the same process in the evolution of human thought and human language? Professor Noiré did not know of the linguistic fact, when he arrived at his psychological conclusions. I did not know of his psychological conclusions, when I arrived at

my linguistic facts. But when I saw that by different roads we had both arrived at exactly the same point, I thought that this could not be by an accident.

There remained, however, one more question to be answered, and that question again could be answered hypothetically only. How can we account for the sounds of the roots, which we have recognised as the germs of conceptual thought and conceptual language? Why should, for instance, the concept of rubbing be expressed by MAR, and that of tearing by DAR? Here again Noiré and others before him have pointed to the well-known fact that men, when engaged in common acts, find a relief in emitting their breath in more or less musical modulation. It has therefore been supposed that our roots are the remnants of sounds which accompanied these acts, and which, being used, not by one man only, but by men acting in common, were therefore intelligible to the whole community.

No one would dream of representing this theory of the origin of our conceptual roots as a well-ascertained historical fact. It is and can only be an hypothesis. But, as such, it fulfils all the requirements of a working hypothesis. It explains all that has to be explained, and it does not run counter to any facts, or any well established theories. It explains the sounds of our roots, not as mere interjections, which would be the signs of momentary feelings, and not, what we want, the signs of our consciousness of a number of repeated acts as one action. Our roots are, if we may venture to say so, conceptual, not interjectional sounds. They are, in fact, exactly what, according to Noiré's philosophical system, the primary elements of language ought to be.

I do not say that this theory is the only possible theory of the origin of roots, and therefore of language. Let a better theory be started, and I shall be delighted to accept it. But don't let us try to revive exploded theories, unless there are new facts to support them. I can only give you my own experience. For many years I was satisfied to look upon roots as ultimate facts. But when Professor Noiré showed that the fundamental concepts of our thought must be concepts expressive of our own acts, and

when thereupon I went carefully through the list of our Aryan roots and found that with few exceptions, every one of them, as a matter of fact, expressed the ordinary acts of men in a simple state of civilisation, I was driven to the conclusion that the primitive roots of Aryan speech may owe their origin to the sounds which naturally accompany many acts performed in common by members of a family, a clan, or a village. This would vindicate once more the conviction which I have always held that language was from the beginning conceptual, and confirm the well-known statement of Locke, that 'the having of general ideas is that which puts a perfect distinction between man and brutes, and is an excellency which the faculties of brutes do by no means attain to.'

Allow me in conclusion to say a few words on what I can hardly call a criticism, but rather a misrepresentation, or, I ought perhaps to say, a complete misapprehension of this theory of the origin of roots which appeared in a book lately published by Professor Romanes, "Mental Evolution in Man," as a continuation of an earlier work of his, called "Mental Evolution in Animals." My learned friend, Professor Romanes, labors to show that there is an unbroken mental evolution from the lowest animal to the highest man. But he sees very clearly and confesses very honestly that the chief difficulty in this evolution is language and all that language implies. He tries very hard to remove that barrier between beast and man. For that purpose he devotes a whole chapter, the thirteenth, to a consideration of the roots of language, and yet he says at the end of the chapter, "I wish in conclusion to make it clear that the matter—that is the question whether roots are imitations of sound or interjections—is not one which seriously affects the theory of evolution."

If it were so, why should Professor Romanes have devoted a whole chapter to it? But it is not my intention to argue this question with Professor Romanes, but rather to show how difficult it is for any one, not acquainted with the Science of Language, even to apprehend the problems that have to be solved. Professor Romanes is, I believe, a most eminent biologist, and the mantle of Darwin is said to have fallen on his shoulders. Far be it from me to venture to criticise his biological facts. But we see in his

case how dangerous it is for a man who can claim to speak with authority on his own special subject, to venture to speak authoritatively on subjects not his own. Professor Romanes has, no doubt, read several books on philology and philosophy, but he is not sufficiently master of his subject to have the slightest right to speak of men like Noiré, Huxley, Herbert Spencer, to say nothing of Hobbes, with an air of superiority. That is entirely out of place. When he points out differences of opinion between philologists, he does not even understand how they have arisen, and he ought to know better than anybody else that mere difference of opinion between two competent scholars does not prove that both are wrong and can never be used to throw discredit on the whole science.

But as I said just now, I am not going to argue with Professor Romanes because, as he says himself (p. 276), if I were right, his whole theory would collapse. I hope this is not the case, but I feel sure that, if it were, Professor Romanes would only rejoice at it. Anyhow why introduce so much of the *meum* and *tuum* into these discussions? If it could be proved that the Aryas came from Europe, then, no doubt, the other theory that they came from Asia, would collapse. But among serious students every such collapse would be greeted with gratitude, and would be looked upon simply as a step in advance. We are all fellow workers, we all care for one thing only, the discovery of truth. It is in this spirit, and without a thought of any collapse, that I venture to point out a number of clear mistakes which occur on almost every page when Mr. Romanes touches linguistic questions, and which fully account for his not perceiving the true character of the evidence placed before us by the Science of Language.

On page 267 he says that I profess, as a result of more recent researches, to have reduced the number of Sanskrit roots to 121.

I wish I had. But the number of roots in Sanskrit stands as yet at about 800; the number 121, of which he speaks, is the number of concepts expressed by these roots, many of them conveying the same, or nearly the same idea. A root is one thing, a concept quite another. To confuse the two is like confusing thought and expression.

I thought I had made it quite clear, that these 121 concepts, conveyed by about 800 roots, are simply and solely the residue of a careful analysis of Sanskrit, and of Sanskrit only. I took particular care to make this clear. 'They constitute the stock in trade,' I said, 'with which every thought that has ever passed through the mind of India, so far as it is known to us in its literature, has been expressed.' What can be clearer? Still Professor Romanes thinks it necessary to remark that 'these concepts do not represent the ideation of primitive man!' I never said they did. I never pretended to be acquainted with the ideation of primitive man. All I maintained was that, making allowance for obscure words, every thought, that of the lowest savage as well as that of the most minute philosopher, can be expressed with these 800 roots, and traced back to these 121 concepts. I even hinted that the number of these concepts might be considerably reduced. The question is not whether forms of activity, such as *to yawn*, *to spew*, *to vomit*, *to sweat*, were of vital importance to the needs of a primitive community, but whether they were known and therefore named, in the early vocabulary of India. If on the other hand some of these concepts, such as *to cook*, *to roast*, *to measure*, *to dig*, *to plait*, *to milk*, betoken an advanced condition of life, all we can say is that they would probably not occur in the dictionary of primeval savages, wherever such a being can be found, and that they do not profess to be the first utterances of the *Homo alalus*, whoever that may be.

Immediately after this, Professor Romanes dwells on what he calls the interesting feature of all roots being verbs. This is simply a contradiction in terms. In giving the meaning of roots scholars generally employ the infinitive or the participle, to go, or going, but they have stated again and again that a root ceases to be a root as soon as it is used in a sentence, either as a subject or as a predicate, either as a noun or a verb. All his arguments therefore that archaic words, expressive of actions, would have stood a better chance of surviving as roots than those which may have been expressive of objects, are simply out of place. The question whether verbs came first or nouns, may be argued *ad infinitum*, quite as much as the question whether the egg came first or the chicken. Every sen-

tence requires a subject as well as a predicate. If Professor Romanes approves of my saying that roots stood for any part of speech, just as the monosyllabic expressions of children do, I can only say that if I ever said so, I expressed myself incorrectly. A root never stands for any part of speech, because as soon as it is a part of speech, it is no longer a root.

After that, Professor Romanes returns once more to his statement that the roots of Aryan speech are not the aboriginal elements of language, as first spoken by man. Why deny what has never been asserted? I know nothing of the language as first spoken by man. I say with Steinthal, 'Who was present when the first sound of language burst forth from the breast of the first man, as yet dumb?' All that we, the students of language, undertake to do is to take language as we find it, to analyse it, and to reduce it to its simplest component elements. What we cannot analyse, we leave alone. The utmost we venture to do is to suggest an hypothesis as to the possible origin of these elements. Of the *Homo alalus*, the speechless progenitor of *Homo sapiens*, with whom Professor Romanes seems so intimately acquainted, students of human speech naturally know nothing. Professor Romanes assures us (p. 211) that the reducing of language to a certain small number of roots, and the fact that all the roots of language are expressive of general and generic ideas, yield no support whatever to the doctrine either, that these roots were themselves the aboriginal elements of language, or, *a fortiori*, that the aboriginal elements of language were expressive of general ideas. He evidently does not see that we are speaking of two quite different things. I am speaking of the facts of language, he is speaking of the postulates of a biological theory which may be right or wrong, but which certainly derives no support whatever from the Science of Language. If, like Professor Romanes, we begin with the 'immense presumption that there has been no interruption in the developmental process in the course of psychological history,' the protest of language counts for nothing; the very fact that no animal has ever formed a language, is put aside simply as an unfortunate accident. But to students to whom facts are facts, immense presumptions count for nothing: on the

contrary they are looked upon as the most dangerous merchandise and most likely to lead to shipwreck and ruin.

Instead of closing with these facts, Professor Romanes tries to show that those who try to explain them are not always consistent. That may be so, and I should be sorry indeed if my latest views were not more advanced and more correct than those which I expressed forty years ago. But very often where Professor Romanes sees inconsistency, there is none at all.

Speaking of roots in my "Science of Thought," I said: 'Although during the time when the growth of language becomes historical and most accessible, therefore, to our observation, the tendency certainly is from the general to the special, I cannot resist the conviction that before that time there was a pre-historic period during which language followed an opposite direction. During that period, roots beginning with special meanings, (though, of course, always general in character) became more and more generalised, and it was only after reaching that stage, that they branched off again into special channels.'

The observation which I recorded in these words, was simply this, that a root meaning originally to yawn, may in time assume the meaning of opening, while during a latter period, a root meaning to open, may come to be used in the more special sense of yawning. Facts are there to prove this. But whether a root expresses the act of yawning or opening, it remains general and conceptual in either case, though the intension of the concept may be smaller or larger. Where Professor Romanes sees inconsistency, he only shows that he has not apprehended the drift of my remarks.

When all the facts of real language are against him, Professor Romanes betakes himself to baby-language. Here he is safe, and he knows quite well, why I refuse to argue with him or any other philosopher either in the nursery, or in the menagerie, either about Mamma and Papa, or about 'Poor Polly.' But if all he wants is to prove the possibility of onomatopœia, he could have found much ampler evidence in my own laboratory, only with this restriction that, after we have analysed these onomatopœic words which in

some languages are far more numerous than even Professor Romanes seems to be aware of, we are only on the threshold of the real problem, namely how to deal with real language, that is, with those conceptual words which *cannot* be traced back to natural sounds or interjections.

Professor Romanes appeals to philology in support of his theory, and, to use a favorite phrase of his own, to philology let him go! It was long considered an irrefragable proof in support of the onomatopœic theory that *thunder* was called *thunder*. People imagined they heard the rumbling noise of the clouds echoed in the sound of thunder. However, the word was taken to pieces by comparative philologists, *thunder* was found out to be closely connected with the Latin *tonitru* and the Sanskrit *tanyatu*, and there could be no doubt that these words were all derived from the root TAN, to stretch, from which the Greek *τονος*, stretching, tension, and tone. Thunder, therefore, was clearly shown to owe its origin to this root TAN, in which there is very little trace of distant rumble. But what does Professor Romanes do? He appeals in his distress to Archdeacon Farrar, who is reported to have said that the word *thunder*, even if not originally onomatopœic, became so from a feeling of the need that it should be! Now, this fairly takes away one's breath, and I cannot believe that Professor Romanes could have used this argument seriously. He begins by maintaining that words are formed by imitation of natural sounds. He quotes *thunder* as a case in point. He is told by comparative philologists that thunder is derived from a root TAN, to stretch. He does not attempt to deny this, but he appeals to Archdeacon Farrar, who says that the word became afterwards onomatopœic, from a feeling of the need that it should be so. If that is not shirking the question, I do not know what is. Suppose it were true that thunder had been supposed to be an imitation of a rumbling noise by those who, like Professor Romanes, are convinced that all words must be more or less onomatopœic. What in all the world has that to do with the real origin of the word? We want to know how the word thunder came to be, and we are told, if it was not onomatopœic, it ought to have been so, nay that by certain ignorant people it was supposed

to be so. This goes beyond the limits of what is allowed in any serious discussion.

But Professor Romanes attempts a still greater triumph in forensic adroitness, when he suddenly turns round and declares himself altogether convinced by the theory proposed by Noiré and myself, though at the same time placing it on a level with the Bow-wow and Pooh-pooh theories. Now the fact is, that both Noiré and myself have been most anxious to show the fundamental difference between these two exploded theories and our own. The theory which I, for clearness' sake, was quite willing to call the *Yo-he-ho* theory, is the very opposite of what Noiré called the *Synergastic* theory. Those who appeal to words like *thunder* as derived from the rumbling sound in the clouds, without any conceptual root standing between our conceptual word *thunder* and these unconceptual noises, hold the Bow-wow theory. Those who hold that *fiend* is derived direct from the interjection *fie*, without any conceptual root standing between the unconceptual *fie* and the conceptual word *fiend*, hold the Pooh-pooh theory. Those who would derive *to heave* and *to hoist* from sounds like *Yo-he-ho* would hold what may be called the *Yo-he-ho* theory. I have never denied that there are some words in every language which may be so explained.

But what similarity is there between these theories and our own? We begin with the fact that the great bulk of a language consists of words, derived, according to the strictest rules, not from cries, but from articulate roots. No one denies this. We follow this up with a second fact, that nearly all these roots express acts of men. No one denies that. We then propound an hypothesis that possibly the phonetic elements of these roots may be the remnants of utterances such as even now sailors make when rowing, soldiers when marching, builders in pulling and lifting, and that as expressing originally the consciousness of such repeated acts, performed in common, these roots would fulfil what is wanted, they would express conceptual thought, such as beating, cutting, rubbing, binding, and all the other 121 concepts from which, as a matter of fact, all the words that fill our dictionaries have been derived. Those who cannot see the difference between a man, or, for all that,

between a mocking bird, saying *Cuckoo*, and a whole community fixing on the sound of TAN, as differentiated by various suffixes and prefixes, and expressing the concept of stretching in such words as *tonos*, *tone*, *tonitru*, *thunder*, *tanu*, *tenuis*, *thin*, should not meddle with the Science of Language.

Observations, for instance, on the language of children, or on what I call Nursery psychology, are very interesting and may be useful for other purposes. But what have they to do with the problem of the origin of language? The two problems, how a child learns to speak English, and how language was elaborated for the first time, are as remote from each other as the two poles. The one is perfectly clear, though it may vary in different children. No child makes its language, it simply accepts what has been made. What *we* are concerned with is, how each word was originally made, how the first impulse to speech was given, what were the rough materials out of which words were shaped, how words assumed different meanings by becoming specialised or generalised, or by being used metaphorically—how, in the end, some words became purely formal, and served as the grammatical articulations of human speech. What has that to do with a child learning to say *Bread* or *Milk*, or with a parrot learning to say *Poor Polly*? We might as well try to study the geological stratification of the earth from watching the layers of a wedding-cake. I know quite well that every philosopher, when he becomes a father thinks that he may discover the origin of language in his nursery. The books which owe their origin to these paternal experiments are endless. But they have thrown hardly one ray of pure light on the dark problem of the origin and evolution of human speech. That problem, if it can be solved at all, can only be solved by a careful analysis of language, such as it exists in the immense varieties of spoken languages all over the globe. This is the work which the Science of Language has carried out for nearly a century, and which will occupy the minds of many students and philosophers for centuries to come.

F. MAX MUELLER.